

The author sums up his results as follows :—The air of the swimming-bladder presents a composition which may vary more or less, relatively to the proportion of oxygen, under the following circumstances :—

1. The oxygen diminishes and disappears in asphyxia and other morbid conditions.

2. In the fishes with an open, as in those with a closed swimming-bladder, the air is renewed without being derived from the atmosphere, and the rapidity of this renewal is proportional to the vigour of the fish.

3. The new air presents an amount of oxygen far superior to the proportion of that gas usually contained in the air of the swimming-bladder, and also far superior to that contained in the air dissolved in the water.—*Comptes Rendus*, Nov. 16, 1863, p. 816.

*On the Intercellular Substance and the Milk-Vessels in the Root of the common Dandelion.* By Dr. AUGUST VOGL.

The root of the common Dandelion possesses a central woody body, surrounded by a thick, fleshy, strongly milky rind. If fine sections of the root be treated under the microscope with various chemical reagents, it appears that the intercellular substance occurring in the root consists chiefly of pectose—the same substance which occurs in unripe fruits and in turnips and carrots. By this it is shown that this substance is by no means a secretion, but a product of conversion of the cellulose of the cell-membranes. This conversion is chemical in its nature, and proceeds from without inwards. The production of the milk-vessels in the root of the Dandelion stands in connexion with this pectinic metamorphosis. The milk-vessels which occur in this plant are perhaps among the most ramified which occur anywhere in plants. They form main stems, which, united into bundles, pass through the bark in a direction parallel to the axis of the root. These main stems throw out a quantity of lateral shoots—sometimes as short transverse branches of intercommunication, sometimes as cæcal branches of greater or less length, which are either inflated into a knob or drawn out to a hair-like fineness at the extremity; the different bundles are connected in a tangential direction, and thus form large reticulated systems around the woody nucleus. On examining into their origin, it appears that their main stems are produced by the amalgamation of the so-called conducting cells (*Leitzellen, Siebzellen*) which accompany the bundles of milk-vessels, and probably constitute the organ for conducting back the juices elaborated in the leaves. This fusion is induced by the conversion into pectose of the membranes of the cells, consisting at first more or less entirely of cellulose.—*Bericht der kais. Akad. der Wissenschaften in Wien; Math.-naturw. Classe*, Dec. 17, 1863, p. 10.